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Analysis of Potential Financial Distress Using the Altman Z-Score Method in the Property Sector Affected by High Interest Rates (Case Study: PT Lippo Karawaci Tbk Period 2023–2025)

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Abstract The tight monetary policy characterized by higher-for-longer interest rates during the 2023–2025 period poses a severe challenge to the capital-intensive property industry. This study aims to measure and analyze the potential of financial distress at PT Lippo Karawaci Tbk as an impact of these macroeconomic fluctuations. The research method employed is descriptive quantitative with a single case study design utilizing secondary data from audited financial statements for the 2023–2025 period. The corporate financial health was calculated using the Modified Altman Z-Score model through four variable components (X_1, X_2, X_3, X_4). The calculation results reveal that LPKR consistently remained in the Safe Zone, generating a Z-score of 2.985 in 2023, jumping to 4.976 in 2024, and reaching 5.423 in 2025, which comfortably exceeds the minimum critical threshold of $Z > 2.90$. Despite extreme contractive pressure on pure operating asset productivity driven by shrinking residential sales margins, corporate financial stability was salvaged by a drastic reinforcement in its capital structure and a radical reversal of retained earnings from deficit to surplus. This exponential financial leap was triggered by managerial strategic agility through the divestment of shares in its healthcare subsidiary, Siloam Hospitals, to settle its foreign currency-denominated senior notes. The research implications confirm that portfolio diversification and disciplined debt restructuring effectively act as a natural resilience in mitigating bankruptcy risks amidst external monetary crises

Keywords Altman Z-Score; Divestment; Financial Distress; Property Sector; High Interest Rates.

INTRODUCTION

Entering the mid-2020s, the global and domestic macroeconomic landscape faced significant stability challenges due to prolonged monetary tightening (higher-for-longer interest rates). Domestically, this restrictive pressure was clearly reflected in the aggressive increase in Bank Indonesia's benchmark interest rate (BI-Rate) throughout late 2023, reaching a peak of 6.25% in April 2024, before finally being held at a tight range of 4.75% until the close of the 2025 fiscal year (Bank Indonesia, 2025). This restrictive monetary policy was deliberately implemented by the central authority to curb global inflation, maintain the stability of the Rupiah exchange rate against geopolitical volatility, and control the money supply. However, the transmission of this high cost of funds had a massive domino effect on capital-intensive domestic industrial sectors, including the property and real estate sector (Shaarawy et al., 2024). The property sector is a key driver of national economic growth due to its multiplier effect on more than 170 other supporting industrial subsectors. Its key characteristic, its high sensitivity to changes in interest rate policy, makes it the sector most vulnerable to deteriorating financial performance during a monetary crisis. According to Oktapani & Maryani (2024), a corporation's financial sustainability is determined by its ability to maintain its operational cash flow to cover short-term liabilities. In an era of monetary tightening, such as the 2023–2025 period, the property sector experienced dual pressures that damaged its financial structure from both sides (supply and demand shocks).

From the supply side, property issuers rely heavily on highly leveraged debt structures, both in the form of syndicated bank loans and commercial bond issuances to fund land acquisition and project construction (Connolly & Muhlhofer, 2020). A surge in the BI-Rate automatically increases corporate borrowing costs (cost of funds), which immediately erodes net operating profit margins. This situation is exacerbated for issuers with a portion of their debt denominated in foreign currency, where the depreciation of the Rupiah due to global sentiment has multiplied the burden of converting principal and interest on current debt (Maharditya et al., 2018).

Meanwhile, on the demand side, the high benchmark interest rate is quickly transmitted by commercial banks into rising interest rates on Home Ownership Loans (KPR) and Apartment Ownership Loans (KPA), with consumer interest rates at certain bank groups remaining high at an average range of 9.22% to 10.35% per year (Financial Services Authority, 2025). Given that the majority of Indonesians purchase residential property using credit, the high monthly mortgage installments reduce the real consumer dependency index and purchasing power. This decline in demand has caused developers' annual marketing sales to decline sharply during the 2023–2025 period. Completed residential properties are ultimately held as unsold inventory, meaning companies' net working capital is locked in short-term, illiquid, non-cash assets (Usman, 2022).

Despite being hit by high interest rate risks, the property sector's resilience is simultaneously aided by a fiscal stimulus policy in the form of a 100% Government-Borne Value Added Tax (PPN DTP) incentive rolled out by the government from 2024 to 2025 (Ministry of Finance, 2025). This stimulus creates a unique market contradiction and dynamic, with issuers being encouraged to launch mass-produced, ready-to-occupy residential properties to pursue tax incentive quotas while securing cash inflows. One of Indonesia's giant property issuers facing this complex dynamic head-on is PT Lippo Karawaci Tbk (LPKR). As the largest diversified developer, LPKR has a complex debt portfolio and US dollar-denominated foreign exchange bonds, but on the other hand, it has solid recurring income strength from its Siloam Hospitals healthcare network that can act as a balancing financial cushion.

. Swelling interest costs on the expenditure side and slowing cash conversion on the sales side have the potential to push issuers into a phase of financial distress. According to Say (2024), financial distress is a stage of financial decline preceding bankruptcy, characterized by the inability to meet obligations to creditors on time. Therefore, bankruptcy prediction analysis is a crucial early warning system in 2026 for management, investors, and creditors to gauge a corporation's financial resilience. The most reliable and globally recognized empirical measurement tool for the non-manufacturing sector is the Modified Altman Z-Score method (1995), which evaluates four key indicators: net working capital capacity, accumulated retained earnings, operating asset productivity, and capital structure solvency strength (Krishnatama et al., 2019).

Previous research on financial distress in the property sector has largely focused on the Covid-19 pandemic era (2020–2022), which was triggered by restrictions on physical social mobility. There is a clear research gap where not many studies have examined the financial resilience of property issuers post-pandemic, which were hit by the monetary crisis in the form of extreme global interest rate spikes throughout 2023–2025 (Herdyan et al., 2024); (Sulistiowati & Alfina, 2023). Therefore, this study was conducted with the title "Analysis of Potential Financial Distress Using the Altman Z-Score Method in the Property Sector Affected by High Interest Rates (Case Study: PT Lippo Karawaci Tbk Period 2023–2025)". This study aims to measure, map, and analyze in-depth trends in financial health and identify the most vulnerable ratio components in the company's financial model.

METHODS

This study employed a quantitative research design using a descriptive approach. Quantitative descriptive research is intended to determine the value of one or more independent variables without making comparisons or examining causal relationships among variables, where the collected data are transformed into numerical values and systematically described (Deckert & Wilson, 2023). In this study, the descriptive approach was applied to calculate, map, and analyze the trend of the Modified Altman Z-Score of PT Lippo Karawaci Tbk during the 2023–2025 period in order to provide a comprehensive overview of the company's financial health and identify the potential risk of financial distress resulting from the indirect impact of high interest rate policies as a macroeconomic phenomenon. The object of this research was the level of financial distress vulnerability measured through the financial ratio indicators incorporated in the Modified Altman Z-Score model, while the research subject was PT Lippo Karawaci Tbk (stock code: LPKR), a publicly listed diversified property and real estate company listed on the Indonesia Stock Exchange (IDX). The study relied exclusively on secondary data obtained from the audited consolidated annual financial statements of PT Lippo Karawaci Tbk for the fiscal years ending December 31, 2023, 2024, and 2025. These data were collected through documentation and literature review methods by downloading the official financial reports from the Indonesia Stock Exchange (IDX) website and the company's official investor relations website. The study employed a single research variable, namely the potential for financial distress, which was measured using the Modified Altman Z-Score model. This model incorporates four financial ratio components (X_1–X_4), specifically adapted for non-manufacturing firms, particularly companies operating in the property and real estate sector, to evaluate the company's financial condition and estimate the likelihood of financial distress..

FINDINGS AND DISCUSSION

Trend Description and Recapitulation of the Modified Altman Z-Score

The analysis of the potential for financial distress at PT Lippo Karawaci Tbk (LPKR) during the 2023–2025 period using the Modified Altman Z-Score model produced highly dynamic multivariate parameters. Based on the transformation of secondary data obtained from the company's audited consolidated financial statements, the decimal values of the four fundamental financial variables (X1, X2, X3, and X4) revealed a significant polarization between the decline in core operating profitability and the strengthening of the corporation's macro capital structure. The comprehensive multivariate calculations, the application of the standard weighting coefficients of the Modified Altman model, and the classification of the company's financial health are presented in detail in Table 1.

Table 1. Recapitulation of Financial Ratio Components and Total Modified Altman Z-Score of PT Lippo Karawaci Tbk (LPKR)

Financial Variable (Altman Component)	Ratio Value 2023	Ratio Value 2024	Ratio Value 2025	Formula Weight Coefficient
X1: Liquidity (WCTA)	0.401	0.435	0.452	× 6.56
X2: Retained Earnings (RETA)	-0.220	0.146	0.169	× 3.26
X3: Asset Productivity (EBITTA)	0.057	0.033	0.018	× 6.72
X4: Capital Structure (BVETL)	0.654	1.355	1.706	× 1.05
Final Total Z-Score (Z)	2.985	4.976	5.423	Summation Result
Financial Health Classification	Safe Zone	Safe Zone	Safe Zone	Criterion (Z > 2.90)

Source: Processed Secondary Data, 2026.

Based on the processed secondary data of PT Lippo Karawaci Tbk for the 2023–2025 period, the financial ratio values and the final Modified Altman Z-Score calculations presented in Table 1 demonstrate a significant upward trend in the company's overall financial health. The total Z-Score increased successively from 2.985 in 2023 to 4.976 in 2024 and reached 5.423 in 2025. According to the standard cut-off value of the Modified Altman Z-Score model, non-manufacturing companies are classified as financially healthy when the Z-Score exceeds 2.90 (Altman, 2013). Therefore, these findings confirm that throughout the observation period (2023–2025), PT Lippo Karawaci Tbk consistently remained within the Safe Zone, indicating a low probability of experiencing financial distress. Technically, the total Z-Score for each year was obtained by multiplying each financial ratio component (X1 to X4) by its respective weighting coefficient in the Modified Altman Z-Score formula.

The liquidity component (X1), represented by the Working Capital to Total Assets (WCTA) ratio, was used to measure the company's short-term liquidity by comparing net working capital with total assets (Petriashvili, 2017). According to LPKR's statement of financial position, current assets amounted to IDR 29.817 trillion in 2023, while current liabilities totaled IDR 9.924 trillion, resulting in net working capital of IDR 19.893 trillion. With total assets of IDR 49.571 trillion, the X1 ratio was calculated at 0.401. In 2024, current assets increased to IDR 34.521 trillion, whereas current liabilities also rose to IDR 11.108 trillion, generating net working capital of

IDR 23.413 trillion. Dividing this figure by total assets of IDR 53.784 trillion produced an X1 ratio of 0.435. In 2025, current assets stood at IDR 29.476 trillion, while current liabilities were substantially reduced to IDR 7.237 trillion, resulting in net working capital of IDR 22.239 trillion. With total assets of IDR 49.247 trillion, the X1 ratio reached its highest level of 0.452. This positive growth trend of 12.7% over the three-year period reflects exceptionally strong short-term liquidity management, where the proportion of net current assets contributed significantly to the overall Z-Score through the weighting coefficient of 6.56.

Meanwhile, the **Retained Earnings (X2)** ratio reflects the company's cumulative profitability over time (Oktaviani, 2024). In 2023, PT Lippo Karawaci Tbk (LPKR) reported a negative accumulated retained earnings balance, or a deficit, of **IDR -10.912 trillion**. With total assets amounting to **IDR 49.571 trillion**, the X2 ratio was calculated at **-0.220**, indicating substantial financial vulnerability. However, a significant turnaround occurred in 2024 when the company's retained earnings shifted to a positive balance (surplus) of **IDR 7.850 trillion**. Dividing this amount by total assets of **IDR 53.784 trillion** resulted in a positive X2 ratio of **0.146**. This strengthening trend continued in 2025 as retained earnings increased further to **IDR 8.321 trillion**. With total assets of **IDR 49.247 trillion**, the X2 ratio rose to **0.169**. Overall, the ratio increased by **176.8%** between 2023 and 2025. After being multiplied by the weighting coefficient of **3.26** in the Modified Altman Z-Score model, this remarkable improvement became the primary indicator of the corporation's internal equity recovery and financial strengthening.

In contrast to the improvement in internal capital, the **Asset Productivity (X3)** variable, which measures the ability of corporate assets to generate operating profit before interest and taxes, exhibited a persistent downward trend (Widjanarko, 2023). In 2023, LPKR recorded earnings before interest and taxes (EBIT) of **IDR 2.827 trillion** with total assets of **IDR 49.571 trillion**, resulting in an X3 ratio of **0.057**. In 2024, operating profit declined sharply to **IDR 1.768 trillion**, and with total assets of **IDR 53.784 trillion**, the X3 ratio decreased to **0.033**. The pressure on operating profitability reached its lowest point in 2025 when EBIT further declined to only **IDR 901 billion**. With total assets of **IDR 49.247 trillion**, the X3 ratio fell to **0.018**. Cumulatively, this operating asset productivity ratio, which carries the highest weighting coefficient in the Modified Altman Z-Score model (**6.72**), declined by **68.4%** during the observation period, indicating a substantial deterioration in the company's ability to generate core operating earnings from its asset base.

Finally, the **Capital Structure (X4)** variable serves as a solvency indicator that measures the strength of the company's capital structure in absorbing debt obligations and financial leverage (Brindescu-Olariu, 2016). At the end of 2023, LPKR reported total equity of **IDR 19.606 trillion**, while total liabilities reached **IDR 29.964 trillion**, resulting in a relatively low X4 ratio of **0.654**. In 2024, the company's capital structure improved substantially as total equity increased dramatically to **IDR 30.947 trillion**, while total liabilities were reduced to **IDR 22.837 trillion**. This significant change in capital composition increased the X4 ratio to **1.355**. The strengthening trend continued in 2025, when total equity remained relatively stable at **IDR 31.051 trillion**, whereas total liabilities declined further to **IDR 18.196 trillion**, producing the highest X4 ratio of **1.706**. This substantial increase of **160.8%**, combined with the weighting coefficient of **1.05**, confirms that the company significantly reduced its dependence on external debt financing, thereby strengthening its long-term financial stability. The fluctuations and movement patterns of the four multivariate components forming the final Modified Altman Z-Score are illustrated in **Figure 1**.

As illustrated by the fluctuation curves in **Figure 1**, the movement patterns of the four financial indicators reveal a pronounced divergence among the components of the Modified Altman Z-Score model. The **Capital Structure ratio (X4/BVETL; green line)** and the **Retained Earnings ratio (X2/RETA; orange line)** recorded exceptionally strong growth following 2023. The green line representing the X4 ratio increased sharply from **0.654** to **1.706**, reflecting the company's successful reduction of interest-bearing liabilities. Simultaneously, the orange line representing the X2 ratio demonstrated a dramatic turnaround by crossing the horizontal zero line from **–0.220** to a positive value of **0.169**. This improvement was primarily driven by non-core operating gains generated through the divestment of part of the company's ownership in its healthcare subsidiary (PT Lippo Karawaci Tbk, 2025). The substantial strengthening of these two macro-capital components became the principal driver of LPKR's rapid improvement in overall financial health.

Conversely, the **Working Capital to Total Assets ratio (X1/WCTA; blue line)** exhibited a gradual and stable upward trend, increasing from **0.401** in 2023 to **0.452** in 2025. This pattern demonstrates the company's ability to maintain efficient short-term liquidity despite the risk of slower cash conversion resulting from unsold property inventories. In contrast, the **Operating Asset Productivity ratio (X3/EBITTA; red line)** was the only component that consistently experienced a contraction throughout the observation period, declining from **0.057** in 2023 to only **0.018** by the end of 2025. The cumulative decline of **68.4%** in the EBITTA ratio provides empirical evidence that the tight monetary policy characterized by persistently high interest rates exerted considerable pressure on operating profit margins within the company's core residential property business, mainly due to rising construction material costs and increasing operating expenses. Nevertheless, management's strategic agility in rebalancing the corporate portfolio through capital structure restructuring (X4) and the liquidation of strategic assets reflected in retained earnings improvement (X2) proved highly effective in protecting PT Lippo Karawaci Tbk from the early indications of financial distress.

DISCUSSION

The quantitative calculation results of PT Lippo Karawaci Tbk's (LPKR) true operational productivity indicator, the Earnings Before Interest and Taxes to Total Assets (EBITTA) ratio, show a very significant contractionary trend of 68.4% during the observation period, with its value shrinking from 0.057 in 2023 to just 0.018 in 2025. This empirical finding provides strong confirmation of the direct transmission effect of tight monetary policy in the form of high benchmark interest rates aggressively implemented by Bank Indonesia throughout 2023–2025. As a result, the residential property sector, LPKR's primary business driver, experienced a double-squeeze effect. From the demand side, the high benchmark interest rate prompted commercial banks to raise mortgage rates. Consequently, the purchasing power of the lower-middle class, LPKR's primary target market, experienced severe pressure, triggering a slowdown in marketing sales volume. This phenomenon of delayed consumer transactions caused the corporation's operational working capital to be temporarily locked up in unsold inventory. The sharp decline in operating profit from IDR 2,827 billion in 2023 to just IDR 901 billion in 2025 is clear evidence that the high cost of funds and operational inflation in the era of monetary restrictions have eroded the true efficiency of the company's total operational assets.

Amidst this extreme external monetary pressure, a positive anomaly was identified in the form of an aggressive increase in LPKR's total Z-Score from 2.985 in 2023 to 5.423 in 2025. Theoretically, the financial health of property issuers is projected to decline into the Grey Zone or Distress Zone when facing a monetary recession. However, LPKR successfully reversed market expectations by implementing a survival mechanism in the form of a decision to divest non-core strategic assets (asset restructuring). A crucial corporate action executed by LPKR in the third quarter of 2024 was the divestment of its majority stake in its healthcare subsidiary, PT Siloam International Hospitals Tbk, to Sight Investment Company Pte Ltd (an affiliate of CVC Capital Partners) for a macro transaction value of IDR 16.68 trillion. The massive capital gain from this transaction successfully restructured the company's equity. The company's disclosure in September 2024 confirmed that through the liquidation of 18.57%, equivalent to 2.41 billion SILO shares, LPKR successfully secured post-tax fresh funds of IDR 6.9 trillion. According to the board of directors' announcement, IDR 3.9 trillion of the total cash was allocated specifically to repay maturing debt obligations, including US Dollar-denominated Senior Notes and short-term bank loans. This tactical move acts as a financial buffer that instantly cuts LPKR's total liabilities drastically from Rp29,964 billion in 2023 to Rp18,196 billion in 2025, while eliminating the risk of currency fluctuations that had threatened the corporation's financial stability due to the era of high global interest rates.

Empirically by the radical reversal of the cumulative profitability ratio (RETA) from a negative value of -0.220 in 2023 due to the accumulation of a historical deficit of -Rp10,912 billion, turning around soaring to a positive surplus of 0.146 in 2024 and continuing to strengthen to a level of 0.169 in 2025. This finding confirms that the business portfolio diversification strategy can be a strong lifeline when the corporation's main business sector is experiencing a cyclical crisis. On the other hand, the extreme increase in the capital structure variable (BVETL) from 0.654 in 2023 to 1.706 in 2025 represents a very strong increase in LPKR's capital solvency capacity. Based on the Agency Theory framework, capital-intensive companies tend to have a high risk of agency costs in the form of tight debt interest burdens that can trigger conflicts of interest between management (agents) and creditors. This agency risk generally transforms into an acute default threat when a company has foreign currency debt exposure amidst the Rupiah's depreciation trend due to rising global interest rates. LPKR's management, acting as agent, successfully mitigated this agency conflict by intelligently allocating fresh cash flow from the sale of SILO shares to early redemption of US Dollar-denominated senior notes issued through Theta Capital Pte. Ltd. The success of aggressively reducing total liabilities by 39.3% (from IDR 29,964 billion in 2023 to IDR 18,196 billion in 2025) completely eliminated foreign exchange risk from the corporate portfolio. This de-leveraging measure successfully realigned the long-term interests of the principals by securing the company's long-term equity structure and distancing LPKR from the risk of structured bankruptcy. Therefore, the finding that PT Lippo Karawaci Tbk consistently remained in the Safe

Zone with a Z-score of 5.423 in 2025 represents a highly interesting anomaly in financial management studies. Theoretically, a high interest rate policy throughout 2023–2025 is predicted to drag highly indebted property issuers into the Distress Zone. However, this study's findings demonstrate that LPKR has successfully refuted this generalization through concrete demonstration of the Managerial Agility concept. The detailed findings demonstrate that the Modified Altman Z-Score model successfully captures two concurrent realities in LPKR's financial statements.

The first reality is the real pressure on the core property sector due to the surge in mortgage interest rates, which has been empirically proven to erode current revenue and drop the company's asset productivity ratio (X3) to its lowest point. The second reality, which proved to be a saving factor, was the execution of a passive defense strategy in the form of a divestment of shares in PT Siloam International Hospitals Tbk (SILO). This non-property asset liquidation measure injected fresh funds on a massive scale that immediately eliminated the past retained earnings deficit into a surplus (skyrocketing variable (X2) while simultaneously reducing the total US Dollar interest-bearing debt liabilities (boosting variable (X4). Thus, LPKR's Safe Zone status was not caused by the organic growth of its residential home sales, but was absolutely the result of macro financial restructuring that successfully neutralized the risk of bankruptcy before the external monetary crisis crippled the company's liquidity.

CONCLUSION

Based on the Modified Altman Z-Score model analysis for the 2023–2025 period, PT Lippo Karawaci Tbk (LPKR) has consistently been proven to be in the Safe Zone with Z scores of 2.985 (2023), 4.976 (2024), and 5.423 (2025), exceeding the minimum critical limit of Z > 2.90. Although the high interest rate policy put pressure on core property operations to the point of declining the asset productivity ratio by 68.4%, the corporation's financial stability was successfully saved by strengthening retained earnings and capital structure variables. This leap in financial health was triggered by management agility in executing the divestment of 18.57% of Siloam Hospitals shares worth IDR 6.9 trillion, of which IDR 3.9 trillion was allocated specifically to repay senior foreign currency bonds. The aggressive capital restructuring and de-leveraging measures successfully reduced total liabilities by 39.3%, while eliminating the exchange rate risk that had threatened the company's liquidity amidst global monetary uncertainty..

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